



## TNS5800D Series

Wall Mounting

12/20-Port Layer 3 Industrial Ethernet Switch for Rail Transit

- Support 4 Gigabit M12 interfaces (with 2 groups of Bypass function), 8/16 100M or Gigabit PoE M12 interfaces (optional)
- Adopt Ring patented technology, support single ring, coupling ring, chain, Dual-homing function
- Support 110VDC dual power supply, single input
- Support IP67 protection grade
- Support -40~75°C wide operating temperature range



Industrial Grade



EN 50155



EN 50121



Bypass

## Introduction

TNS5800D series is layer 3 industrial Ethernet switch designed for rail transit. The product conforms to the requirements of industrial standard EN50155 and EN50121. Ethernet interfaces use firm and reliable M12 connectors which can adapt to usage scenario with vibration and shock. PoE power supply conforms to IEEE802.3af/at protocol standard, and it can power device over Ethernet, thus decreasing the cable connection of powered devices. This series has 4 products. They provide 110VDC power supply input and adopt wall mounting, which can meet the needs of different application sites.

The network management system supports various network protocols and industry standards, such as static routing, RIP, VRRP, NAT, STP/RSTP/MSTP, ERPS, 802.1Q VLAN, QoS function, DHCP Server, IGMP Snooping, LLDP, port trunking, port mirroring, etc. It also possesses complete management functions, support port configuration, port statistics, port IP binding, access control, 802.1X authentication, network diagnosis, rapid configuration, online upgrade, etc.; CLI, WEB, Telnet, SNMP, SSH and other access methods can be supported. Network management system could bring you great user experience through its friendly interface design and easy and convenient operation.

When power supply or port has link failure, ALARM indicator will be bright and send out alarm, meanwhile, alarm device connected to the relay will send out alarm for rapid scene troubleshooting. The power input support two independent power supplies, which can ensure the normal operation of the device when one power supply fails. The hardware adopts fanless, low power consumption and wide temperature design, and the external heat sink provides extraordinary heat dissipation performance. This device has passed rigorous industrial standard tests, which can suit for the industrial scene environment with harsh requirements for EMC. It is designed for rail transit industrial and can be widely used in systems such as train control, on-board PIS, CCTV.

## Features and Benefits

- ⦿ SNMPv1/v2c/v3 is used for network management of various levels
- ⦿ RMON can be used for efficient and flexible network monitoring
- ⦿ Port mirroring can conduct data analysis and monitoring, which is convenient for online debugging
- ⦿ QoS supports real-time traffic classification and priority setting
- ⦿ LLDP can achieve automatic topology discovery, which is convenient for visual management
- ⦿ DHCP server can be used for distributing IP address with different strategies
- ⦿ File management is convenient for the device rapid configuration and online upgrading
- ⦿ Port statistics can be used for the port real time traffic statistics
- ⦿ ARP could be used for MAC address resolution
- ⦿ User password can conduct user hierarchical management to improve the device

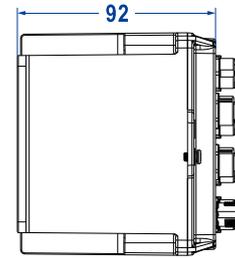
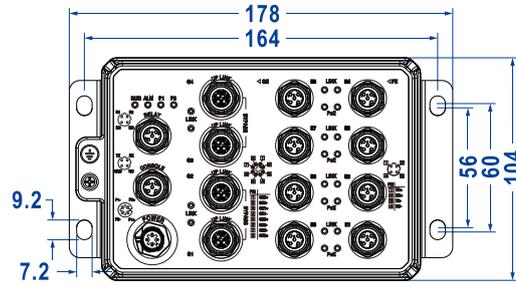
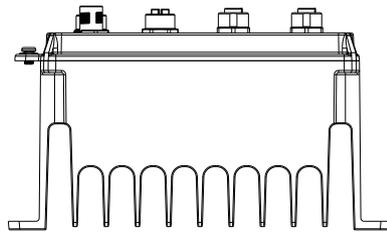
management security

- ⦿ Access Control can enhance network flexibility and security
- ⦿ Storm suppression can restrain broadcast, unknown multicast and unicast
- ⦿ SSHD configuration could encrypt transmitted data, prevent DNS and IP spoofing
- ⦿ TELNET configuration and SSH configuration guarantee secure access to data
- ⦿ VLAN can be set to simplify network planning
- ⦿ Port Trunking can increase network bandwidth and enhance the reliability of network connection to achieve optimum bandwidth utilization
- ⦿ Bandwidth management can reasonably distribute network bandwidth, preventing unpredictable network status
- ⦿ Port isolation could achieve port isolation in the same VLAN and save VLAN resources
- ⦿ PIM-DM/PIM-SM, IGMP Snooping and static multicast can be used to filter multicast data to save network bandwidth
- ⦿ Ring, ERPS, STP/RSTP/MSTP can achieve network redundancy, preventing network storm
- ⦿ Ping, Traceroute, Port Loopback could achieve network diagnosis and troubleshooting
- ⦿ VRRP, RIP, OSPF could implement dynamic router configuration
- ⦿ Bypass function can prevent communication breakdown caused by power supply failure
- ⦿ NAT maps private IP address to the legal IP address of external network, which can slow the consumption of IP address space
- ⦿ PoE could power device via Ethernet, which has greatly saved the cost of device power supply
- ⦿ Loop detection could efficiently eliminate the influence caused by port loopback by detecting the existence of loopback

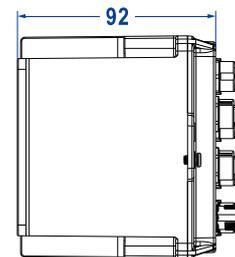
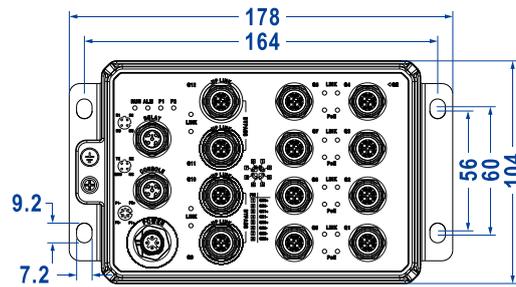
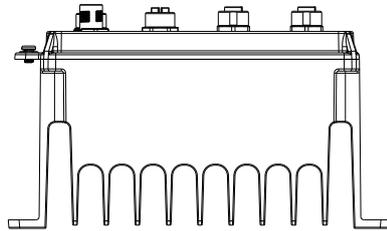
## Dimension

Unit: mm

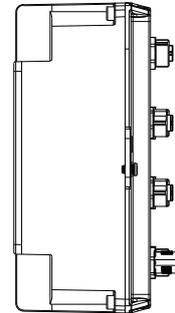
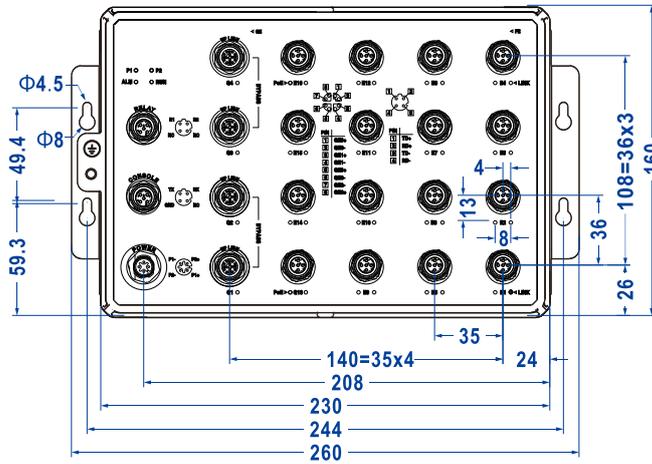
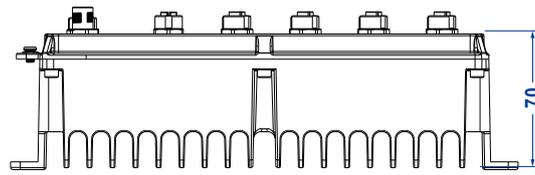
- TNS5800D-8P4GT-P110



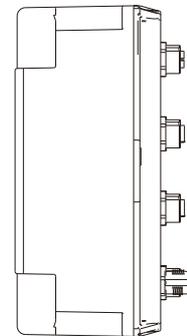
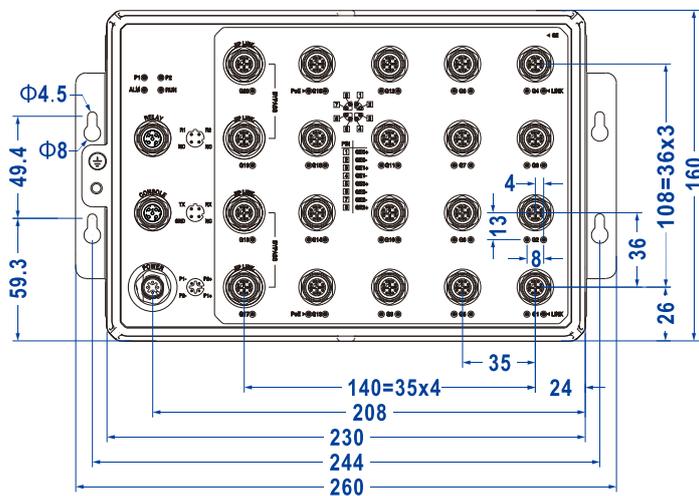
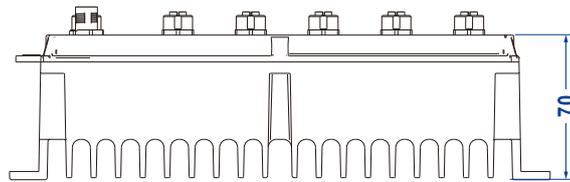
- TNS5800D-8GP4GT-P110



- TNS5800D-16P4GT-P110



- TNS5800-16GP4GT-P110



## Specification

### Standard & Protocol

IEEE 802.3 for 10Base-T  
 IEEE 802.3u for 100Base-TX  
 IEEE 802.3ab for 1000Base-T

	<p>IEEE 802.3x for Flow Control          IEEE 802.1D for Spanning Tree Protocol          IEEE 802.1w for Rapid Spanning Tree Protocol          IEEE 802.1s for Multiple Spanning Tree Protocol          IEEE 802.1Q for VLAN          IEEE802.1p for CoS          IEEE 802.1X for 802.1X Authentication          IEEE 802.1AB for LLDP          IEEE 802.3af for PoE          IEEE 802.3at for PoE+          ITU-T G.8032 for ERPS</p>
<b>Management</b>	<p>SNMP v1/v2c/v3 Centralized Management of Equipment, RMON, Port Mirroring, QoS, LLDP, DHCP Server, File Management, Port Statistics, Log Information, Static ARP, PoE Management</p>
<b>Security</b>	<p>Classification of User Permissions, NAT, 802.1X Authentication, DHCP Snooping, Radius Server Authentication, Port Alarm, Power Alarm, Storm Suppression, SSHD Configuration, Telnet Configuration, Loop Detection, Link Flapping Protection, Aggregation Protection</p>
<b>Switch Function</b>	<p>802.1Q VLAN, Port Trunking, Bandwidth Management, Flow Control, Port Isolation</p>
<b>Unicast / Multicast</b>	<p>Static Multicast, Multicast Routing, IGMP-Snooping, PIM-SM, PIM-DM</p>
<b>Redundancy Technology</b>	<p>Ring, STP/RSTP/MSTP, ERPS</p>
<b>Troubleshooting</b>	<p>Ping, Traceroute, Port Loopback</p>
<b>Routing Technique</b>	<p>VRRP, RIP, OSPF</p>
<b>Time Management</b>	<p>NTP</p>
<b>Interface</b>	<p>100M PoE M12:10/100base-T(X), M12 (Female), 4-Pin D-Coded, automatic flow control, full/half duplex mode, MDI/MDI-X automatic detection; The single port supports up to 30W PoE power supply output. Pin 1 and 3 of PoE power supply are positive, while pin 2 and 4 are negative</p> <p>Gigabit PoE M12:10/100/1000base-T (X), M12 (Female), 8-Pin X-Coded, automatic flow rate control, full/half duplex mode, MDI/MDI-X automatic detection; The maximum capacity of a single port is 30W PoE power supply output. Pin 1 and 2 of PoE power supply are positive, while pin 3 and 4 are</p>

negative

Gigabit M12: 10/100/1000Base-T(X), M12(Female), 8-Pin X-Coded, Automatic Flow Control, Full/half Duplex Mode, MDI/MDI-X Autotuning; it supports two groups of Bypass

RELAY interface: M12(Female), 4-Pin D-Coded, support 1 relay alarm output, with current load capacity of 1A@30VDC or 0.3A@125VAC

Console port: CLI command line management port (RS-232), M12(Female), 4-Pin D-Coded

<b>Indicator</b>	Power indicator, alarm indicator, running indicator, interface indicator, PoE indicator
<b>Switch Property</b>	Transmission mode: store and forward MAC address: 16K Packet buffer size: 12Mbit Backplane bandwidth: 128G Switch time delay: <10μs
<b>Power Supply</b>	Power supply range: 110VDC (66~156VDC), dual power supply, single input Connection method: M12(Male), 4-Pin A-Coded Connection protection: anti-reverse connection
<b>Power Consumption</b>	Full load (no PoE load): < 20W Full load (including PoE load): < 120W
<b>Working Environment</b>	Operating temperature: -40~75°C Storage temperature:-40~85°C Relative humidity: 5%~95% (no condensation)
<b>Physical Characteristic</b>	Housing: IP67 protection, metal Installation: wall mounting Dimension (W x H x D): 178mm × 104mm × 92mm (12-Port device) 260mm × 160mm × 70mm (20-Port device)
<b>Industrial Standard</b>	EN 50121-3-2: 2016 standard, Table 5.3 (Electrostatic Discharge), Class A <ul style="list-style-type: none"> <li>● Air discharge:± 8kV</li> <li>● Contact discharge: ±6kV</li> </ul> EN 50121-3-2: 2016 standard, Table 3.3 (Surge), Class A <ul style="list-style-type: none"> <li>● Power supply: common mode±2kV, differential mode±1kV</li> </ul> EN 50121-3-2: 2016 standard, Table 3.2 (Electrical Fast Transient Pulses), Class A

- Power supply:  $\pm 2kV$
- Signal:  $\pm 2kV$

EN 50121-3-2: 2016 standard, Table 5.1, 5.2 (Radio Frequency Electromagnetic), Class A

- 80MHz~800MHz, 20V/m
- 800MHz~1GHz, 20V/m
- 1.4GHz~2.0GHz, 10V/m
- 2.0GHz~2.7GHz, 5V/m
- 5.1GHz~6GHz, 3V/m

EN 50121-3-2: 2016 standard, Table 3.1, 4.1 (Conducted Disturbance Induced by RF Fields), Class A

- Power supply: 0.15MHz~80MHz, 10V
- Signal: 0.15MHz~80MHz, 10V

EN 50121-3-2: 2016 standard, table 3.1 (Power Supply Conducted Disturbance)

- 150kHz~500kHz, 79dB $\mu$ V quasi-peak value
- 500kHz~30MHz, 73dB $\mu$ V quasi-peak value

EN 50121-3-2: 2016 standard, table 3.1 (Radiation Disturbance)

- 30MHz~230MHz, <40dB $\mu$ V/m quasi-peak value
- 230MHz~1GHz, <47dB $\mu$ V/m quasi-peak value

Shock: IEC 61373

Free fall: IEC 60068-2-32

Vibration: IEC 61373

**Authentication** CE, FCC, RoHS, EN50155, EN50121-3-2, IEC61373

**Warranty** 5 years

## Ordering Information

Available Models	100M PoE M12	Gigabit PoE M12	Gigabit Bypass M12	Power Supply
TNS5800D-8P4GT-P110	8	—	4	110VDC
TNS5800D-8GP4GT-P110	—	8	4	
TNS5800D-16P4GT-P110	16	—	4	
TNS5800D-16GP4GT-P110	—	16	4	



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